IN THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

Claims 1-19. (Canceled)

20. (Currently Amended) A superconducting cable having at least one phase comprising:

[[a)]] a layer of tapes comprising superconducting material;

[[b)]] a tubular element for supporting said layer of tapes ~~comprising superconducting material~~, said tubular element comprising at least one portion made of metallic ~~material,~~ material and being in electrical contact with the layer of tapes ~~comprising superconducting material~~;

[[c)]] a cooling circuit~~, adapted~~ configured to cool the layer of tapes ~~superconducting material~~ to a working temperature not higher than [[its]] the critical temperature of the tapes, the cooling circuit comprising a fluid at a predetermined working pressure ranging between a minimum value and a maximum ~~value;~~ value, wherein deformation of ~~said~~ the layer of tapes ~~comprising superconducting material,~~ consequent to a temperature variation between room temperature and the working temperature ~~of the cable~~ is lower than critical deformation of the ~~same tapes,~~ layer of tapes; and

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~~characterized in that~~ a predetermined amount of conductive material of resistive type in electrical contact with the layer of tapes, the conductive material being ~~superconducting material is present,~~ ~~such that~~ configured to cause a maximum temperature reached by the layer of tapes ~~superconducting material~~ in case of a short circuit ~~is~~ to be lower than the lesser of ~~a minimum temperature between~~ the critical temperature of the superconducting material comprising the layer of tapes and the boiling temperature of said cooling fluid at a minimum working pressure of said fluid.

21. (Previously Presented) A superconducting cable according to claim 20, wherein said layer of tapes is incorporated within a metallic coating.

22. (Previously Presented) A superconducting cable according to claim 21, wherein said superconducting material comprises at least one reinforcing foil made of metallic material.

23. (Previously Presented) A superconducting cable according to claim 22, wherein said superconducting material comprises two reinforcing foils made of metallic material coupled to opposite faces of said layer.

24. (Previously Presented) A superconducting cable according to claim 22 or 23, wherein said superconducting material is essentially pre-stressed along a longitudinal direction.

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25. (Previously Presented) A superconducting cable according to claim 24, wherein the layer of superconducting material of said at least one tape comprising superconductive material has a pre-stress degree along a longitudinal direction (γ) of between 0.05 and 0.2%.

26. (Previously Presented) A superconducting cable according to claim 20, wherein the cable comprises a plurality of tapes comprising superconducting material spirally wound on the surface of said at least one supporting tubular element, said tapes having winding angles of between 5° and 60°.

27. (Previously Presented) A superconducting cable according to claim 23 or 24, wherein the reinforcing foil and the metallic coating of said tapes comprising superconducting material is a metal selected from the group consisting of copper, aluminum, silver, magnesium, nickel, bronze, stainless steel, beryllium, and alloys thereof.

28. (Previously Presented) A superconducting cable according to claim 20, 22, or 23, wherein said tubular element is a composite and comprises a first metallic material and a second material associated to said first material having a thermal expansion coefficient higher than that of said first material.

29. (Previously Presented) A superconducting cable according to claim 28, wherein said first and second materials are formed as adjacent annular sectors.

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30. (Previously Presented) A superconducting cable according to claim 29, wherein said annular sectors are arranged one after the other.

31. (Previously Presented) A superconducting cable according to claim 29, wherein said annular sectors are spirally wound according to a winding angle of between 5° and 50°.

32. (Previously Presented) A superconducting cable according to claim 28, wherein said first metallic material is a metal having a resistivity of 77 K < $5*10^{-9}$ Ωm, a specific heat at 77 K > 10^6 J/m^{3}K and a heat conductivity at 77 K > 5 W/mK.

33. (Previously Presented) A superconducting cable according to claim 28, wherein said second material is a non metallic material having a thermal expansion coefficient higher than $17*10^{-6}$ °C^{-1}.

34. (Previously Presented) A superconducting cable according to claim 33, wherein said second non metallic material is a plastic material selected from the group consisting of polyamide, polytetrafluoroethylene and polyethylene.

35. (Currently Amended) A conductive element for superconducting cables comprising at least one layer of superconducting material incorporated within a metallic coating supported by a tubular element comprising a predetermined amount of metallic

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material with which the layer is in electrical contact, said layer of superconducting material being cooled by means of a cooling fluid to a temperature not higher than the critical temperature of the layer, wherein a predetermined amount of conducting material of resistive type is present in electrical contact with the layer of superconducting material, such that a maximum temperature reached by the at least one layer of superconducting material in case of short circuit is lower than the lesser of ~~a minimum temperature between~~ the critical temperature of the at least one layer of superconducting material and the boiling temperature of said cooling fluid at a minimum working pressure of said fluid.

36. (Withdrawn) A method adapted to limit the induced stresses along a longitudinal direction in a tape of superconducting material of a superconducting cable comprising the steps of:

a) providing at least one tubular element for supporting a tape of superconducting material comprising a predetermined amount of metallic material, said tubular element being in electrical contact with a tape of superconducting material;

b) spirally winding said tape of superconducting material onto the surface of said at least one tubular element;

c) cooling the superconducting material to a temperature not higher than its critical temperature by means of a cooling fluid;

d) coupling at least one reinforcing foil made of metallic material to said tape of superconducting material; and

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e) determining a total amount of metallic material in electrical contact with the layer of superconducting material in such a way that the maximum temperature reached by the superconducting material in case of a short circuit is lower than a minimum temperature between critical temperature of the superconducting material and boiling temperature of said cooling fluid at minimum working pressure of said fluid.

37. (Withdrawn) A method according to claim 36, wherein the superconducting material of said tapes of superconducting material has a pre-stress degree along a longitudinal direction (γ) of between 0.05 and 0.2%.

38. (Withdrawn) A method according to claim 36, wherein the tubular element is a composite and comprises a first metallic material and a second material associated to said first material and having a thermal expansion coefficient higher than that of said first material.

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